

Notice of Allowability

Application No.

09/943,598

Applicant(s)

SWOBODA ET AL.

Examiner

Russell L. Guill

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to November 28, 2005.
2. ☒ The allowed claim(s) is/are 1,3-5,16,18-19,21,25-33.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to the applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Robert Marshall on February 3, 2006.
3. The application has been amended as follows:
 - a. Claim 19, line 18, the words "when triggered" have been replaced with the words --when triggered--.
 - b. Claim 19, line 22, the words "when triggered" have been replaced with the words --when triggered--.
 - c. Claim 33, line 6, the words "intpackets having" have been replaced with the words --in packets having--.
4. Claims 1, 3 – 5, 16, 18 – 19, 21 and 25 - 33 are allowed.
5. The following is an examiner's statement of reasons for allowance:
 - a. Regarding **claim 1**, while Edwards teaches a method of providing emulation information indicative of internal operations of a data processor for use by an apparatus external to the data processor, neither this reference taken either alone or in combination with the prior art of record teach the aforementioned method of providing emulation information indicative of internal operations of a data processor for use by an apparatus external to the data processor specifically including: providing a stream of timing information including cycle bits each indicating whether the data processor performed data processing operations or stalled during a corresponding clock cycle; and inserting in the trace stream and in the timing stream temporal information indicative of a temporal relationship between the trace information and the timing information, in combination with the

remaining elements and features of the claimed invention. It is for these reasons that the Applicant's invention defines over the prior art of record.

b. Regarding **claim 19**, while Edwards teaches an apparatus for providing emulation information indicative of internal operations of a data processor for use by an apparatus external to the data processor, neither this reference taken either alone or in combination with the prior art of record teach the aforementioned apparatus for providing emulation information indicative of internal operations of a data processor for use by an apparatus external to the data processor specifically including: a first input for coupling to the data processor; a trace generator coupled to said first input for providing a stream of emulation trace information indicative of data processing operations performed by the data processor, said trace generator having a trigger input for receiving a trigger signal; a second input for coupling to the data processor; a timing generator coupled to said second input for providing a stream of timing information indicative of operation of a clock used by the data processor to perform data processing operations, said timing information including cycle bits each indicating whether the data processor performed data processing operations or stalled during a corresponding clock cycle, said timing generator having a trigger input for receiving said trigger signal; a table of sync ID numbers; said trace generator operable when triggered by said trigger signal to insert temporal information corresponding to a next sync ID number from said table into the trace stream; and said timing generator operable when triggered by said trigger signal to insert temporal information corresponding to said next sync ID number from said table into the timing stream, in combination with the remaining elements and features of the claimed invention. It is for these reasons that the Applicant's invention defines over the prior art of record.

c. Regarding **claim 26**, while Edwards teaches an integrated circuit having a data processor, and an apparatus coupled to said data processor for providing

emulation information indicative of said data processing operations to an emulation apparatus located externally of the integrated circuit, including a trace generator for providing a stream of emulation trace information indicative of said data processing operations, and a timing generator for providing a stream of timing information indicative of operation of a clock used by the data processor to perform data processing operations, none of these references taken either alone or in combination with the prior art of record teach the aforementioned integrated circuit specifically including: timing information including cycle bits each indicating whether the data processor performed data processing operations or stalled during a corresponding clock cycle, and a table of sync ID numbers; and the trace generator operable to insert temporal information corresponding to a next sync ID number from said table into the trace stream; and the timing generator operable to insert temporal information corresponding to said next sync ID number from said table into the timing stream, in combination with the remaining elements and features of the claimed invention. It is for these reasons that the Applicant's invention defines over the prior art of record.

d. Regarding **claim 27**, while Edwards and Miyayama teach a data processing system having an integrated circuit having a data processor, and an emulation controller located externally of the integrated circuit and coupled thereto for controlling emulation operations of the data processor, the integrated circuit including an apparatus coupled between the data processor and the emulation controller for providing to the emulation controller emulation information indicative of data processing operations, the apparatus including a trace generator for providing a stream of emulation trace information indicative of said data processing operations, and a timing generator for providing a stream of timing information indicative of operation of a clock used by the data processor to perform data processing operations, none of these references taken either alone or in combination with the prior art of record teach the aforementioned data processing system specifically including: timing information including cycle bits

Art Unit: 2123

each indicating whether the data processor performed data processing operations or stalled during a corresponding clock cycle, and a table of sync ID numbers; and the trace generator operable to insert temporal information corresponding to a next sync ID number from said table into the trace stream; and the timing generator operable to insert temporal information corresponding to said next sync ID number from said table into the timing stream, in combination with the remaining elements and features of the claimed invention. It is for these reasons that the Applicant's invention defines over the prior art of record.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2123

Conclusion

7. The Examiner would like to note that the claims of U.S. Patent Number 6,985,848 were considered.

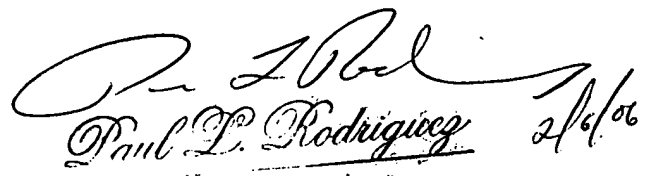
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell L. Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday – Friday 10:00 AM – 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Russ Guill
Examiner
Art Unit 2123

RG


Paul L. Rodriguez
Examiner
Art Unit 2123 2/6/06